LISTING OF THE CLAIMS

1. (Currently Amended) A photoconversion device comprising:

a substrate having a surface;

a doped region in said substrate and at said surface thereof, said doped region being of a first conductivity type and having a graded profile, wherein said doped region has a higher dopant concentration near the surface of the substrate, comprises a first sub-region doped to a first dopant concentration and a second sub-region doped to a second dopant concentration and a third sub-region adjacent to said first and second doped sub-regions, wherein said third sub-region is doped the same as said substrate; and

a charge accumulation region in said substrate and substantially below said doped region, said charge accumulation region being of a second conductivity type, said third sub-region separating said first and second doped sub-regions from said charge accumulation region and a transistor gate.

2. (Original) The photoconversion device of claim 1, wherein said first conductivity type is p-type.

3. (Original) The photoconversion device of claim 1, wherein said second conductivity type is n-type.

4. (Cancelled).

5. (Cancelled).

6. (Currently Amended) The photoconversion device of claim [[4]] 1, wherein said first dopant concentration is a p+ dopant concentration.

7. (Currently Amended) The photoconversion device of claim [[4]] 1, wherein said first dopant concentration is from about 2.0 x $10^{12}/cm^2$ to about 1.0 x $10^{14}/cm^2$.

8. (Original) The photoconversion device of claim 7, wherein said first dopant concentration is from about 6.0 x $10^{12}/cm^2$ to about 5.0 x $10^{13}/cm^2$.

9. (Currently Amended) The photoconversion device of claim [[4]] 1, wherein said second dopant concentration is from about 1.0 x $10^{12}/cm^2$ to about 6.0 x $10^{13}/cm^2$.

10. (Original) The photoconversion device of claim 9, wherein said second dopant concentration is from about 3.0 x $10^{12}/cm^2$ to about 4.0 x $10^{13}/cm^2$.

11. (Previously Presented) The photoconversion device of claim 6, wherein a pinning voltage for said photoconversion device is substantially set by said first sub-region.

12. (Currently Amended) The photoconversion device of claim [[4]] 1, wherein said graded profile is established by said first dopant concentration being greater than said second dopant concentration.

13. (Cancelled).

14. (Currently Amended) The photoconversion device of claim [[13]] 1, wherein said first doped sub-region is spaced farther from said transistor gate than said second doped sub-region.

15. (Cancelled).

16. (Cancelled).

17. (Currently Amended) The photoconversion device of claim [[4]] 1, wherein said first and second doped sub-regions comprise BF_2 or Indium ions.

18. (Currently Amended) The photoconversion device of claim 1, wherein said doped region and said charge accumulation region are part of a photodiode.

19. (Cancelled).

20. (Currently Amended) The photoconversion device of claim [[4]] 1, wherein said second doped sub-region has a shallower doping profile with respect to said substrate surface than said first doped sub-region.

21. (Cancelled).

22. (Original) The photoconversion device of claim 1, wherein said photoconversion device is part of a CMOS imager.

23. (Original) The photoconversion device of claim 22, wherein said CMOS imager is a 3T, 4T, 5T, 6T, or 7T device.

24. (Original) The photoconversion device of claim 1, wherein said photoconversion device is part of a CCD imager.

25. (Previously Presented) The photoconversion device of claim 1, wherein said charge accumulation region comprises arsenic, antimony, or phosphorus ions.

26-29. (Cancelled).

30. (Currently Amended) A photoconversion device comprising:

a substrate having a surface and a substrate dopant concentration;

a first region of said substrate, said first region being doped to a first conductivity type and at least partially located at the surface of the substrate;

a second region of said substrate, said second region being adjacent to said first region, said second region having a dopant concentration substantially the same as said substrate dopant concentration; and

a third region of said substrate, said third region being doped to a second conductivity type, located substantially beneath said first region with respect to said substrate surface, separated from said first region by said second region, ~~and being~~ configured to collect photogenerated charge, and wherein said third region extends to a transistor gate at the surface of said substrate at a neck.

31. (Original) The photoconversion device of claim 30, wherein said first conductivity type is p-type.

32. (Original) The photoconversion device of claim 30, wherein said second conductivity type is n-type.

33. (Previously Presented) The photoconversion device of claim 30, wherein said first doped region has a first dopant concentration.

34. (Previously Presented) The photoconversion device of claim 30, wherein said second region has a dopant concentration of said first conductivity type no greater than a dopant concentration of non-active portions of said substrate.

35. (Previously Presented) The photoconversion device of claim 33, wherein said first dopant concentration is a p+ dopant concentration.

36. (Original) The photoconversion device of claim 35, wherein said first dopant concentration is from about 2.0 x $10^{12}/cm^2$ to about 1.0 x $10^{14}/cm^2$.

37. (Original) The photoconversion device of claim 36, wherein said first dopant concentration is from about 6.0 x $10^{12}/cm^2$ to about 5.0 x $10^{13}/cm^2$.

38. (Cancelled).

39. (Cancelled).

40. (Previously Presented) The photoconversion device of claim 30, wherein said first doped region comprises BF_2 or Indium ions.

41. (Cancelled).

42. (Cancelled).

43. (Original) The photoconversion device of claim 30, wherein said photoconversion device is part of a CMOS imager.

44. (Original) The photoconversion device of claim 43, wherein said CMOS imager is a 3T, 4T, 5T, 6T, or 7T device.

45. (Original) The photoconversion device of claim 30, wherein said photoconversion device is part of a CCD imager.

46. (Previously Presented) The photoconversion device of claim 30, wherein said third region of said substrate comprises arsenic, antimony, or phosphorus ions.

47. (Currently Amended) The photoconversion device of claim 30, wherein said second region of said substrate separates said first region from [[a]] said neck of said third region.

48. (Cancelled).

49. (Currently Amended) The photoconversion device of claim [[48]] 30, wherein said second region of said substrate separates said first region from said transistor gate.

50. (Previously Presented) The photoconversion device of claim 49, wherein said first region has a higher concentration of dopant ions of said first conductivity type nearer the surface of said substrate relative to portions of said first region farther from said surface of said substrate.

51-234. (Cancelled).

235. (Currently Amended) A photoconversion device comprising:

a substrate having a surface and a substrate dopant concentration;

a first region of said substrate doped to a first conductivity type and located at and below the surface of the substrate, said region having a dopant gradient profile wherein said dopant is in higher concentrations nearer said surface of said substrate relative to portions of said first region deeper within said substrate;

a second region of said substrate doped to a second conductivity type, ~~and~~ located substantially beneath said first doped region relative to said surface and extending to said surface below a transistor gate, said second region being configured

with said first region for generating charge from light exposure and collecting photogenerated charges; and

a third region of said substrate, said third region having a dopant concentration substantially the same as said substrate dopant concentration and separating said first and second regions from each other and separating said first region from said transistor gate.

236-240. (Cancelled).